

Digital Textbooks

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Abstract: Digital textbooks are the future of education, making learning more affordable and accessible for all. A digital textbook is essentially an electronic rendition of a traditional print textbook with more features. It is accessed through a computer or smartphone and can be read online or downloaded for offline reading. It helps students to learn better and improve their overall learning experience. It is an easy, convenient, and thoroughly modern way of accessing academic information. Digital textbooks are causing radical changes in education, affecting the ways teachers teach and student learn. This paper provides an introduction on digital textbooks, identifying their pros and cons.

Keywords: traditional text, legacy textbook, print textbook, e-textbook, digital textbook.

INTRODUCTION

Digitalization has transferred many ordinary activities to the Internet. The same goes for textbooks. The ever-rising cost of education has been a major concern of parents, educators, and government. As more and more teachers and students become comfortable in a digital learning environment, there is a rapid introduction of digital content. The rapid growth of distance education is another vehicle that requires familiarity digital content.

Advancements in technological capabilities will continue to drive changes in the way students learn and teachers teach. Today, college students have many options regarding the type of learning materials to buy. They can choose to buy either print or digital textbooks. Online textbooks are generally less expensive than physical textbooks because publishing books online eliminates paper, printing, and shipping costs.

Digital textbook (also e-textbook, virtual textbook, or online textbook) refers to the digitized, interactive function of intelligent textbook content displayed in a scientific and intuitive visual, audio, graphic, and text through electronic media reading textbook. Digital textbooks are a complement to what teachers do, not a replacement. They offer the same content as regular college textbooks but in a digital format. In the digital age, many schools and students have turned to e-textbooks to try and reduce their spending. Digital textbooks are becoming increasingly popular as more and more educational materials are made available in digital formats. Several forces are driving schools to seriously consider using digital content. Schools that are hoping to save money, incorporate technology into the curriculum, cater to different learning styles, and develop 21st century students are turning to digital textbooks to meet those

needs [1]. But digital textbooks may not be for everyone. There are some publishers who are yet to make the shift from print to digital.

TRADITIONAL TEXTBOOKS

For many years, textbooks were seen as an essential foundation for instruction and learning, being regarded as a fundamental part of the educational infrastructure for acquiring knowledge. Traditional textbooks are also known as legacy or print textbooks. Print textbooks are often employed as textbooks in most universities. You do not need to worry about having a functioning electronic device to read print textbooks. An example of traditional textbooks on a bookshelf is shown in Figure 1 [2].

The benefits of a print textbook include the following [3]:

- *Engagement:* The engagement level is generally higher than when using electronic books. Digital textbooks reside in electronic devices. That means there is a vast world of games, social media, and other distractions a click away, which can negatively impact one's ability to follow along.
- *Reliability:* Traditional textbooks are generally more reliable than their electronic counterparts. A digital textbook requires working with an appropriate electronic device and a battery charger.
- *Reselling:* College students can resell their textbooks when they are done using them. There are lots of sites online that will offer you a reasonable price for your used textbooks. The option of reselling of digital books is not available
- *Help Sleeping:* Students are busy people and are always up late studying. Digital books are not the best for late-night test prep. Electronic readers suppress the brain's production of melatonin and make it harder to fall asleep. Tradition textbooks are better for nighttime reading or studying.
- *Aid Comprehension:* Digital books are popular in pleasure reading. When you need to remember what you read, print books are better. People find that eBooks are hard to absorb.
- *Less Distracting:* A student using a device could be secretly be on social media without the teacher knowing. Digital books can be distracting.

DIGITAL TEXBOOKS

A digital textbook is essentially an electronic form of a traditional, printed textbook. It is an e-book (or e-textbook) intended to serve as the text for a class or course. Digital textbooks can provide multimedia information that the print textbooks cannot. Some digital textbooks are simply digitized versions of printed books, while others include additional features such as interactive features, multimedia content, and built-in study tools. These added elements increase engagement and comprehension and improve the overall learning experience of the students. Digital textbooks are often cheaper and more portable than traditional textbooks. Educators can find open-source digital textbooks online that are free to use [4].

Due to the recent Covid-19 virus, many schools choose to take online lessons at home. This made electronic textbooks essential for many students. Forward looking publishers are now commonly offering digital versions of their textbooks, while some publishers have even switched entirely to digital. Figure 2 shows reading electronic books with tablet [5].

Modern classrooms are often equipped with several pieces of technology, including computers, televisions, whiteboards, and portable electronic devices, such as smartphones, tablet computers, and e-book readers. These devices aid learning and can accommodate digital textbooks [6]. A typical example of students using e-book in class is shown in Figure 3 [7]. Textbooks should be made available as digital licenses procured and managed by libraries. A digital textbook can be fabricated relatively easily by using Epub or DAISY.

There are so many ways to download free textbooks. If you are a college student, you can use the OpenStax, Open Textbook Library, and ScholarWorks website. Sites that provide digital textbooks include Amazon Kindle, Barnes & Noble Nook, iBooks, Cengage Brain, Cengage Brain, eCampus, VitalSource, Chegg, Textbooks.com, and McGraw-Hill eBookstore.

BENEFITS

High textbook prices have long been a bane for students, but students now they have the choice to purchase e-books. Students are using e-textbooks at an increasing rate. Demand for digital textbooks has never been higher. During COVID-19, digital textbooks became the primary delivery model as physical books were locked away in the pandemic. Textbook publishers and faculty have been experimenting with using them in the classroom with mixed success. Benefits of digital textbooks include the following [3,9].

- *Affordability*: Print textbooks are generally more expensive. This makes some students not to buy textbooks altogether. Digital textbooks are more affordable.
- *Accessibility*: Printed textbooks can be forgotten at home or at school. Digital textbooks can easily be accessed anywhere, anytime. You only need to go online and search the title of the textbook, pay for it, and download it. Teachers and students can access them on multiple devices.
- *Interactivity*: Online textbooks can be interactive and contain audio, video and animations, which can enhance the author's message. Digital textbooks offer the opportunity for students to access multimedia content, such as embedded videos, interactive presentations, and hyperlinks
- *Portability*: The portability of digital textbooks is one of its major advantages. One can literally carry thousands of digital textbooks in your smartphone.
- *Convenience*: Digital textbooks allow students to learn in a way that is more convenient, flexible, and empathetic to their needs, especially when they are taking online courses.
- *Space Requirements*: Print textbooks occupy physical space, while digital books just require your smartphone or any other digital device.
- *Eco-Friendliness*: The production of print textbooks has a significant impact on the environment. In the US alone, 626,000 tonnes of paper are used to produce books each year. With electronic textbooks, no single sheet of paper is necessary. Thus, digital books are generally environmentally friendly.
- *Updating*: Digital textbooks can be updated more easily than traditional textbooks. Incorporating new research into your course materials is essential to ensuring students learn from the most up-to-date content.
- *Preference*: The current college students are known as digital natives. For them, a traditional textbook becomes a liability if it is not available digitally and on-demand. They generally prefer and appreciate digital textbooks.
- *No Wait Delivery*: Traditional textbooks can take weeks to arrive in the mail, but digital books are readily available for immediate use.
- *Enhanced Learning*: Digital textbook readers have tools built in that help you learn better. Videos, animations, interactive charts, audio clips, and interactive maps are also included throughout a digital book. Students can take advantage of the quick search function. They can take notes and highlights just like in a regular textbook. Digital textbooks also include interactive assessments throughout chapters to help learners study at any time. Interactive textbooks allow learners to share notes, and teachers to receive feedback.

- *Interactivity*: Online textbooks give students the freedom to highlight, instantly search for the major terms or chapter titles, adjust font sizes, copy and paste, and hear audio translations.
- *Collaborative Learning*: Digital textbooks provide a collaborative experience for learners and teachers if they have access to the textbook.
- *Faster Searches*: Instead of thumbing through pages of a print textbook, students can easily find the passages they are looking for with fast keyword searches.
- *Cost-effective Publishing*: Publishers also do not have to deal with the loss of revenue due to unsold printed textbooks. There are no costs related to printing, warehouse storage, or shipping.

CHALLENGES

There are pros and cons to everything. Despite the many advantages of digital textbooks, several barriers exist. The transition from traditional textbooks to e-textbooks is costly, complex, and controversial. Since digital textbooks must be accessed through an electronic device, such as a computer, laptop or smartphone, schools must determine how to provide Internet access for all students. Though many governments and schools are making large investments in digital textbooks, adoption pace is slow. Figure 4 shows some of the downsides of e-textbook [9].

Other challenges include [10,11]:

- *More Distractions*: Digital textbooks reside in electronic devices that can easily access the Internet, games, and other distractions. They can present challenges for teachers as they fight for their students' attention.
- *Physical Limitations*: Using digital textbooks requires that electronic devices to be available and fully functioning. Students need their laptop or smartphone and they need access to a power outlet and the Internet.
- *Piracy*: The content available on the Internet is always at a risk of piracy. Digital Rights Management (DRM) allows only authorized users to make changes or download the content and make the content stays safe from unauthorized use.
- *Inclusive Access*: This is model in which colleges have contracts with book publishers to provide required digital texts and study tools at a discount. Then, colleges automatically bill students when they enroll, as part of their tuition. Pearson, the dominant book publisher in the US, has inclusive access agreements with about 900 institutions. This practice has come under criticism from some skeptical student advocates.
- *Highlighting*: Students who like to follow teachers in class and highlight relevant portions of text may find this more challenging with a digital textbook.
- *Eye Strain*: Staring at an electronic screen can result in more eyestrain than staring at the pages of a book for some students.
- *Disparity*: Not every student can afford a digital device, so education disparity or digital divide exists between the wealthy and the poor.

Other reasons why students are not using digital textbooks include [12]:

1. The books they need are not available in digital format
2. They are not as affordable as you might think
3. You cannot lend or resell most e-textbooks
4. It feels strange to mark up an e-book
5. e-Textbooks are heavy, too
6. There are better digital options available.

7. Today's students grew up with books
8. eBooks offer a different experience
9. Finding e-textbooks is a scavenger hunt
10. Students expect more from digital editions

With pros and cons on both ends of the spectrum, no one is sure what the future of digital textbooks will be. One can only guess that the majority of digital natives will be using digital textbooks in the future.

CONCLUSION

A digital textbook is electronic versions of a traditional, print textbook used in schools and colleges. It refers to an interactive set of learning content and tools accessed via a laptop, tablet, or other digital device. It can incorporate various forms of digital content, such as videos, photos, and electronic simulations. The rate of digital textbooks will continue to increase because of the skills and familiarity with them of the incoming student population, who are digital natives. Universities, colleges, and K-12 school districts are increasingly adopting digital textbooks.

UNICEF and its partners are driving an innovative solution called Accessible Digital Textbooks for All, to make textbooks available, affordable and accessible for children with disabilities in all contexts. By adding specific features to digital format, textbooks can be made accessible to students who are blind or have low vision, to those who are deaf or hard of hearing, and to those who have intellectual, developmental or learning disabilities [13].

For the publishers who are still doubting about making the switch, digital textbook is the way to go. For more information about digital textbooks, one should consult the books in [14-19].

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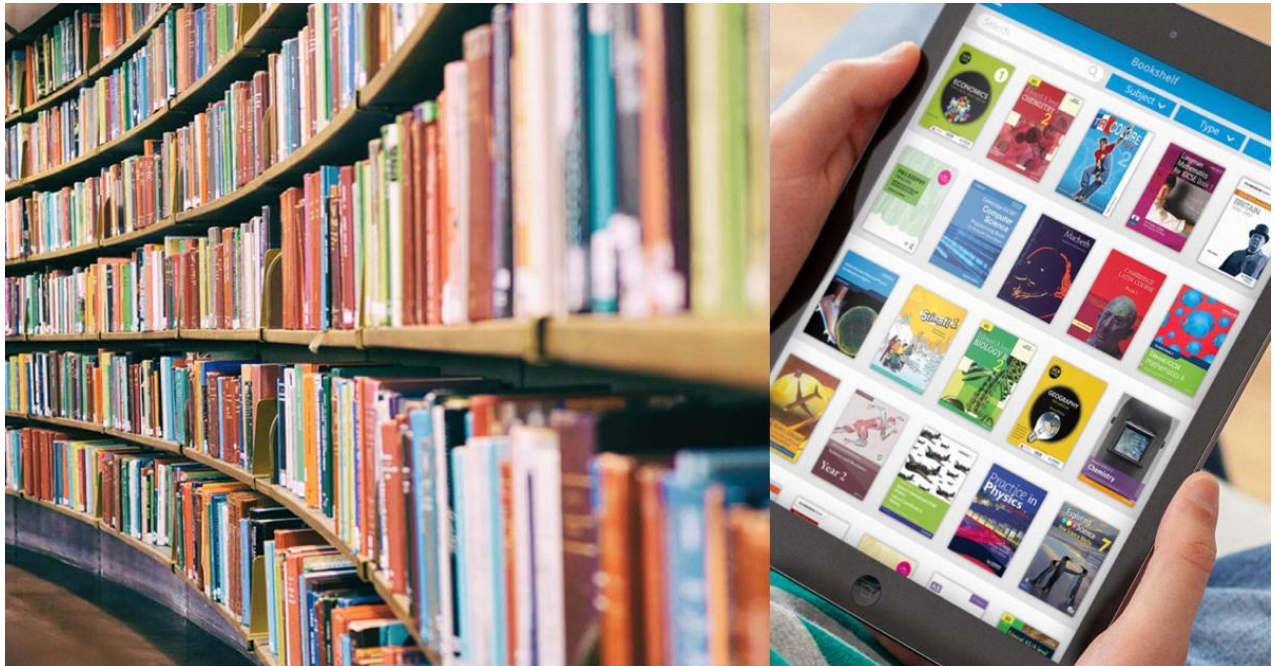


Figure 1 An example of traditional textbooks on a bookshelf [2].



Figure 2 Reading electronic books with tablet [5].



Figure 3 A typical example of students using e-book in class [7].

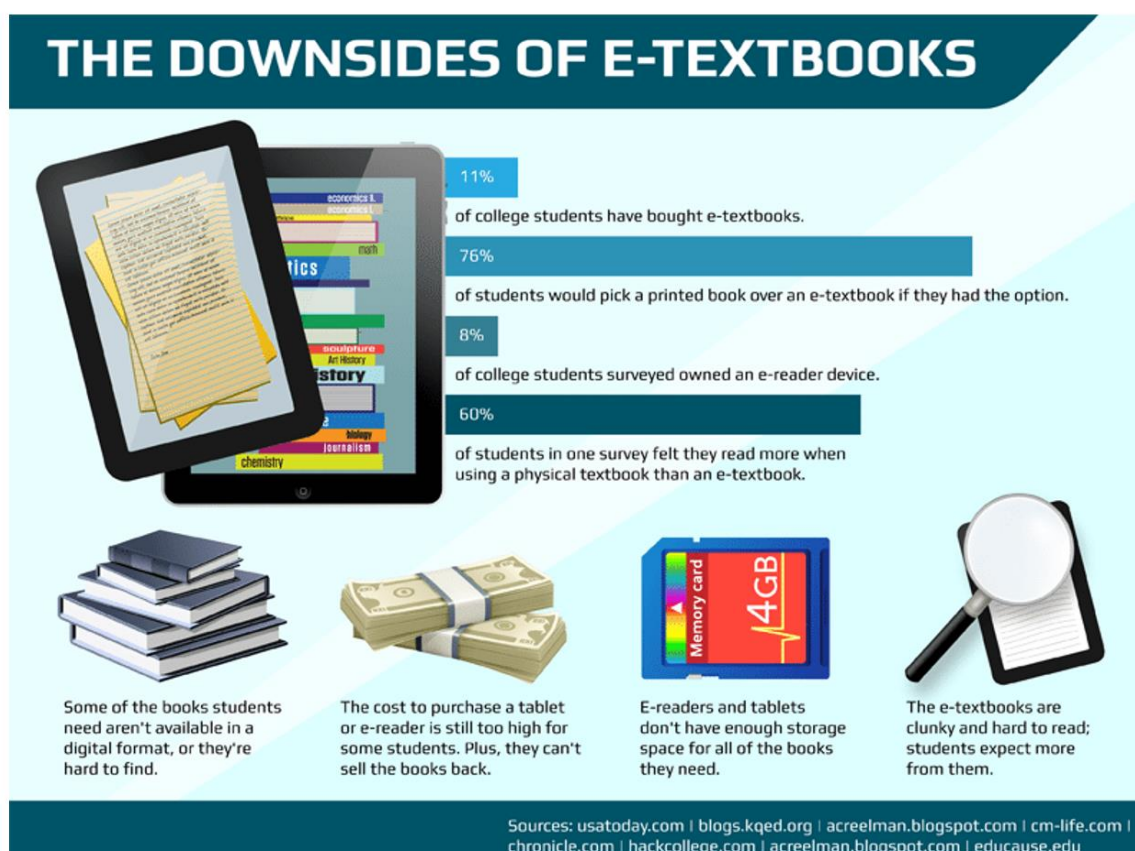


Figure 4 Some of the downsides of e-textbook [9].